

1/9

Fig. 1

```

-9  cggtgaagaatggtgtatTTTTTaaatttcatgtcaataaccaatgtcccgggtgctgaag
      M V Y F L N F M S I T N V P V L K
52  cgcgcgcgactctacatggcgacgaatcgccggctggtggttgttcttgtggtgctgctg
      R A R L Y M A T N R R L V V V L V V L L
112 tactgggtggtccagaacgtttggacgtggagccctgggacgcgcgatttggcccaagtg
      Y W V V Q N V W T W S P G T R D L A Q V
172 gacgcgaagatcgaggccgagctaaactcgaatctacatacttttggagcgcatttgcgc
      D A K I E A E L N S N L H T F G A H L R
232 cacttaaaccggcttccggcagagtcggccaccctgcgtgaaaaactcaccttctatttc
      H L N R L P A E S A T L R E K L T F Y F
282 ccatattatcctgaaaagcccggtgccgaaccagatctggcagacatggaaggtcgatctc
      P Y Y P E K P V P N Q I W Q T W K V D L
352 gaagacgacaacttccccaaagcagtacagacgggttcagaagacgtgggtcgagaaaaat
      E D D N F P K Q Y R R F Q K T W V E K N
412 ccagactacgtgtaccacctgattccggactctgtgattgaggactttgtggcgagtttg
      P D Y V Y H L I P D S V I E D F V A S L
472 tacgcgaacgtgccggaggtggtcagagcgtaccagctgcttccgaaaaatatcatgaag
      Y A N V P E V V R A Y Q L L P K N I M K
532 gcggtatttttccggtatttgggtgatctacgcgcgcggaggcacctactcagacatggac
      A D F F R Y L V I Y A R G G T Y S D M D
592 acggtgtgtttaagccgatcaaggactgggccacgtttgatcgcgacctgatccacgct
      T V C L K P I K D W A T F D R D L I H A
652 gccgacaataagccgatctctcccagatagatccagaagcaagaaccacgcctgtgggg
      A D N K A D L S Q I D P E A R T T P V G
712 ctggtgattggcattgaggccgaccggacaggcccgactggcacgagtgttctcgcgc
      L V I G I E A D P D R P D W H E W F S R
772 agactgcagttctgccagtgagcatccaggcgaagccggacaccgcgtgctgcgcgag
      R L Q F C Q W T I Q A K P G H P L L R E
832 ctgatcatccgatcgtggaggagacgttccgcaaacagcacatgggcgttttgaaaaga
      L I I R I V E E T F R K Q H M G V L K R
892 gtggaaggcaaggactcgggcgcagatatcatgcagtggacaggaccggggatatttaca
      V E G K D S G A D I M Q W T G P G I F T
952 gacactctgtttgattatctgaacaatgtggcgagcgacggcaagttgggcgacgggtac
      D T L F D Y L N N V A S D G K L G D G Y
1012 ggcggtgggtcgttgatttggcgcaagcacggcaaatataagctgaaaaagacagaaatt
      G V G S L Y W R K H G K Y K L K K T E I
1072 aacaagaataacgagccattgcattctgaggaccagcttatcaactggaggtcgctgacc
      N K N N E P L H S E D Q L I N W R S L T
1132 aacatggacaagccaaagatcatgggggacgtaatggtgttaccaatcacgagcttttagt
      N M D K P K I M G D V M V L P I T S F S
1192 ccgaacgtggggcacatgggctcaaagagcagctcagataggctggcatttgtggagcat
      P N V G H M G S K S S S D R L A F V E H
1252 ttattttctggcagctggaagccaaaaaacaatataggaaaaataataattagctgcatt
      L F S G S W K P K N K
1312 ttagataattctcatgagcaggcacagaacg

```

2/9

Fig. 2

```

Hb0ch2p 1 -----MVYFLNFMSTITNVPVLKPARFYMATNRRLVWVWLYWYVWV
Hp0chl1p 1 -----MSKASPYRGINSSTSPKPKKLSLAFGLL
Ca0chl1p 1 -----MLQLREPQMWHKHKLAVLGIWVIFTTYTNISS
Pp0chl1p 1 -----MAKADGLFYTPHNPVPRYYFYATFAW
Sc0chl1p 1 -----MSKRLHLIATRSKTIWVTVWYSL
Sp0chl1p 1 -----MLRLRLRSIVI GAATAGSILLLFNHGSIETGMDLTEISMLDYKPREANKDYVGCQEEEBEAYDQP

Hb0ch2p 42 QNWTWSPGTRDLAQVDARIBAEIN---SNLHTFGALIR-----HLNRLPAESATLRLRLSYFFY
Hp0chl1p 32 CLLLFRFSTSWINTEDKIVSEYIN---NFYKLNPFRC-----ANPYDAAVTAEELAKFFPY
Ca0chl1p 35 SPTSITHTFYNSPKLQNAKLEIN---SNWRELGLNFPQ-----NKKYSLPDESTLHQQLAQFFPY
Pp0chl1p 30 VMCVLYGPSQLSSPKDYPIPL---PSLDLKTLEAP-----SOLSPCTVEDNLEROLEHFFPY
Sc0chl1p 29 PHLNKRLLSFYPSKDDFKQTLPTTSHSQDINLKKI-----TVNKKRNQLHNLRLQLSAFFPY
Sp0chl1p 67 EYEEEDPDLEAYLSDLEERLEHSLLELDENNYLHLRYSFSQLQDFDENRAVHNVPPDLEEEV

Hb0ch2p 100 Y-PEEPENQIQQTKWDLEDDNFPQENRQKRV-RMPDYVYHLPDSDVIEDFASTYAN--VPEV
Hp0chl1p 87 DNSADPEKSIQOQKWPSTPDPFKRLVWKWNE---NPYKYNLITDREILEIRIRKDT-VPEV
Ca0chl1p 94 D-RSLPFKKNLQTKWQIDKSEPPRLKQQQDE-DNPDYREYV-PKQCDLAEQLYSQ--VPEV
Pp0chl1p 88 R-SYEPFQHIQQTKWSPSDSFPNLDLGEGL-QESPDYDFPDPDAAWERHHHEER-VPEV
Sc0chl1p 91 R-SOARLQRMOTTKGADKKNPSSATOKWCSYSPDYSLHSDSLIPFENKAP--VPLV
Sp0chl1p 137 P-YHADPEKLIQQTSKOP-----HDNEVMKTRFR-INHESSEAGDDQSKALNISSECDSSSKUS

Hb0ch2p 166 EAYCLLPKTLKADFFRYLLFARGCYEDMDTCLKPTEDMAFDRLIHAADNK-----ADLSQI
Hp0chl1p 153 EAEELPMRLKSDFFRYLLFLMGCYEDMDTDLQKPTMTDFSDRNAGF-----
Ca0chl1p 160 EAYCLLPKTLKADFFRYLLFARGCYEDMDTCLKPTEDMAFDRLIHAADNK-----ADLSQI
Pp0chl1p 154 EAEELPMRLKSDFFRYLLFLMGCYEDMDTDLQKPTMTDFSDRNAGF-----
Sc0chl1p 158 EAEELPMRLKSDFFRYLLFLMGCYEDMDTDLQKPTMTDFSDRNAGF-----
Sp0chl1p 200 EAYCLLPKTLKADFFRYLLFARGCYEDMDTCLKPTEDMAFDRLIHAADNK-----ADLSQI

Hb0ch2p 228 DPEARTTPWGLVIGLEADPDREDHNYRRLOFCQWTTQAKRCHPLRLRLDITWCEPR
Hp0chl1p 204 -----VWQEDDQVYDQVHNTIRRIQFQWTTQAKRCHPLRLRLDITWCEPR
Ca0chl1p 214 -----RSLVGLVIGLEADPDREDHNYRRLOFCQWTTQAKRCHPLRLRLDITWCEPR
Pp0chl1p 208 -----NAGLVIGLEADPDREDHNYRRLOFCQWTTQAKRCHPLRLRLDITWCEPR
Sc0chl1p 228 SSDRISHQFGLVIGLEADPDREDHNYRRLOFCQWTTQAKRCHPLRLRLDITWCEPR
Sp0chl1p 251 -----IRVGLVIGLEADPDREDHNYRRLOFCQWTTQAKRCHPLRLRLDITWCEPR

Hb0ch2p 289 -----QEMGLVLRVEGRDS-----EADINQWTCPGIFDTTFFYMMWASD
Hp0chl1p 258 -----DKLQYYDFEGDDR-----CASVDINQWTCPGIFDTTFFYMMWASD
Ca0chl1p 268 -----NHRGQLKRVLGKRE-----EGDINQWTCPGIFDTTFFYMMWASD
Pp0chl1p 262 -----ESRYLNVVEGRDR-----CSVDINQWTCPGIFDTTFFYMMWASD
Sc0chl1p 298 SEMIDPRFEDYNVNYRHRREDETYHSELKRNKRVGSDINQWTCPGIFDTTFFYMMWASD
Sp0chl1p 304 -----LHDSKRLSKNGES-----ENBUTGPGIFDTTFFYMMWASD

Hb0ch2p 331 ---CKIGDGYGVGSLYWRHCKRYKLRKEINKNNEPLHSEED-----QEMGLVLRVEGRDS
Hp0chl1p 307 DHQPDNAGELYC-----PETGECDASWFFAGHAPVIGDDVWV
Ca0chl1p 310 ---PEGFKNKRR-----W-----ATPDQWLEFGCQOPIAADDVWV
Pp0chl1p 304 ---GHSCQIGCAGSAYNALSLEERDALSARPNGEMLKEKVPCKYAAQQLDQEQDNTPSPRADDVWV
Sc0chl1p 368 LINPNKMDREGSESATTPAKVDNDTLSKSTRKFKYRKISELOSNSGMEFRFUKREVDVWV
Sp0chl1p 341 -----FSEVNIENLEERYNCDVWV

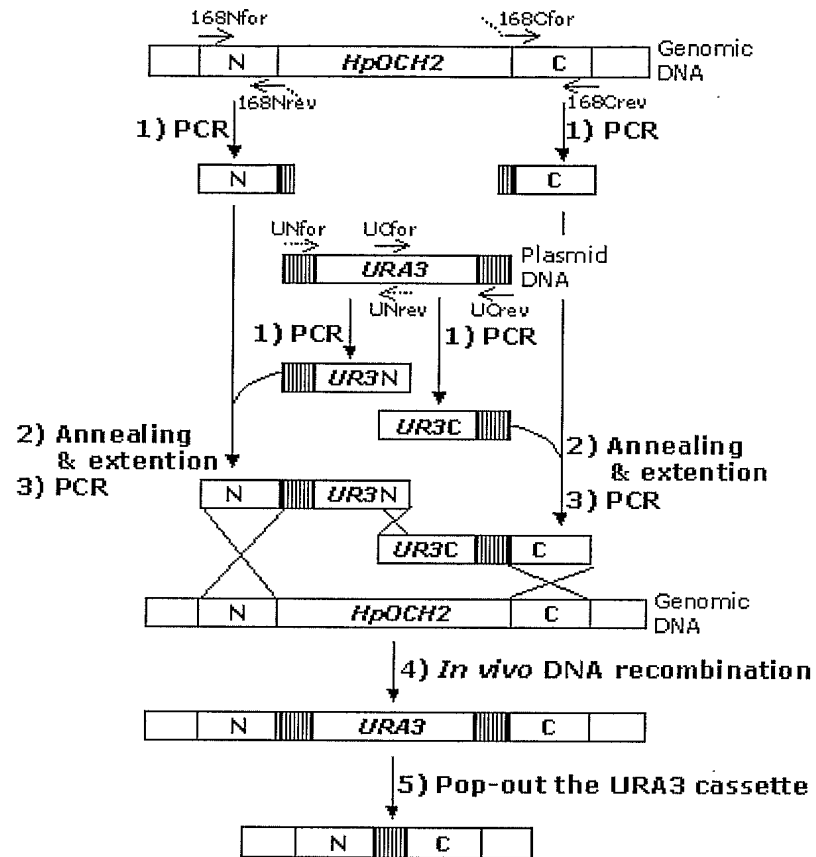
Hb0ch2p 392 PITSFSENNMGAGSSSDALAVHEHLSGSMKPRMK-----
Hp0chl1p 348 PRASFREDK-----ENMCGYCYWHEFGSGSMKMGKGEIKPGMEGYEGEDPNEVERLEKNDVSKDVIP
Ca0chl1p 344 PITSFSPDNMGAGSDSHPLAYNHEFGSGSMKMGKGEIKPGMEGYEGEDPNEVERLEKNDVSKDVIP
Pp0chl1p 371 PITSFSPCAGCAGDLNHEHAYNHEFGSGSMKMGKGEIKPGMEGYEGEDPNEVERLEKNDVSKDVIP
Sc0chl1p 438 PITSFSPDVGCMGAGSSDDALAVHEHLSGSMKMGKGEIKPGMEGYEGEDPNEVERLEKNDVSKDVIP
Sp0chl1p 362 PITSFSPCAGCAGDLNHEHAYNHEFGSGSMKMGKGEIKPGMEGYEGEDPNEVERLEKNDVSKDVIP

Hb0ch2p -----100%
Hp0chl1p 413 GESKDVAPVKKLAKRCAYPYTPY 27.3%
Ca0chl1p -----42.3%
Pp0chl1p -----40.0%
Sc0chl1p -----40.4%
Sp0chl1p -----30.8%

```

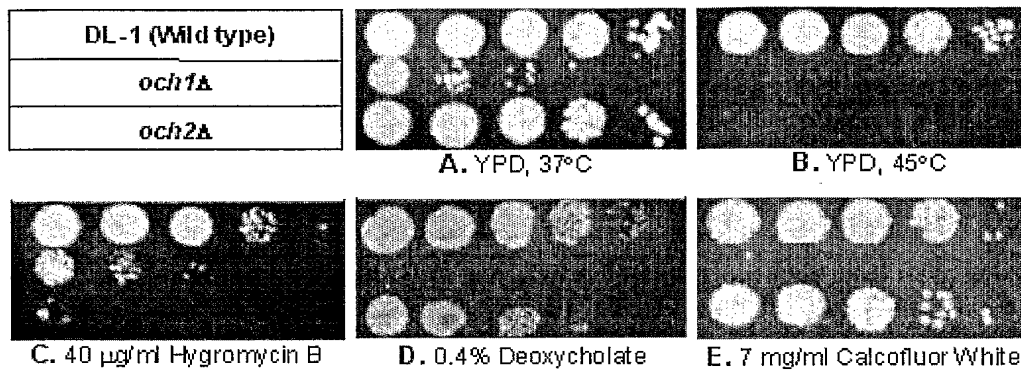
3/9

Fig. 3



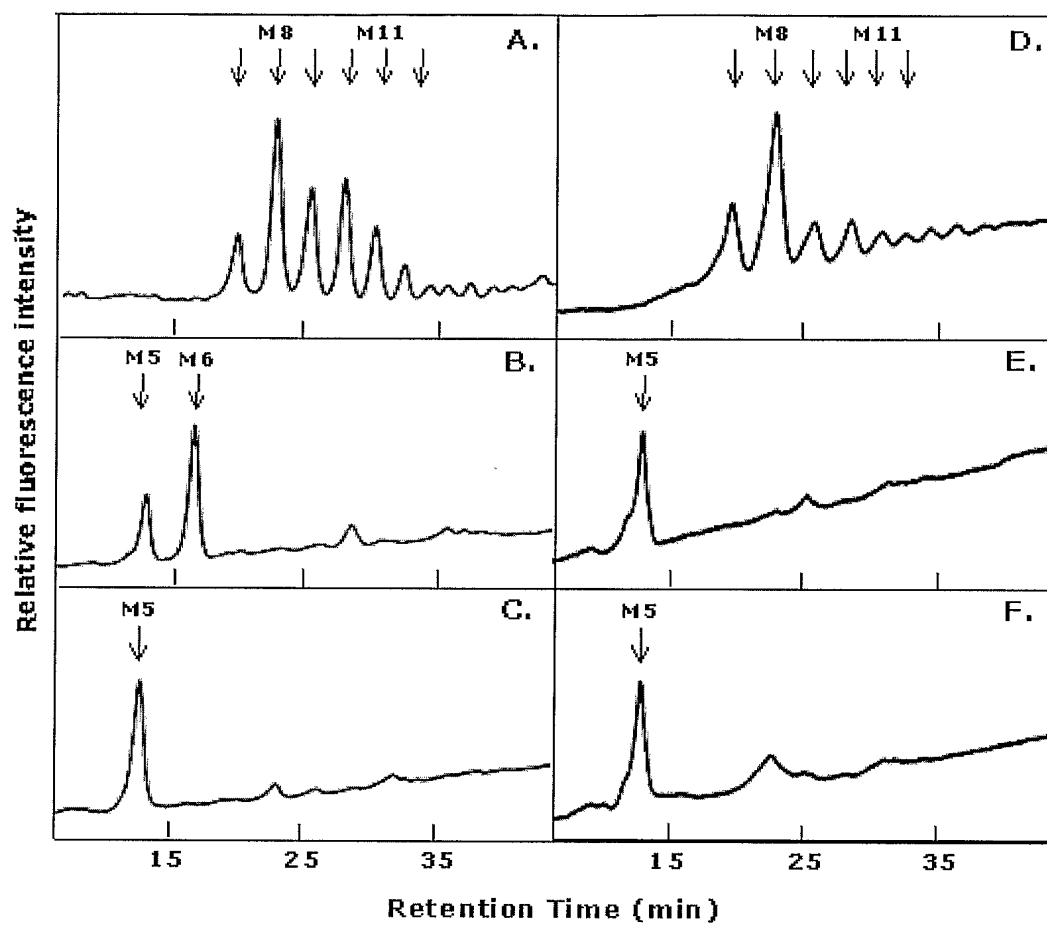
4/9

Fig. 4



5/9

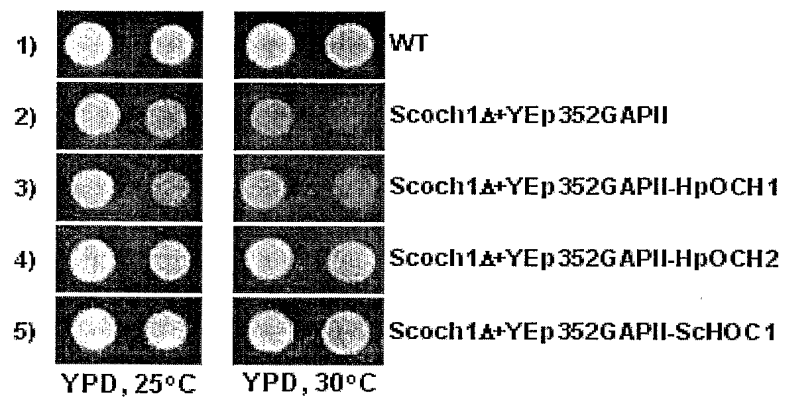
Fig. 5



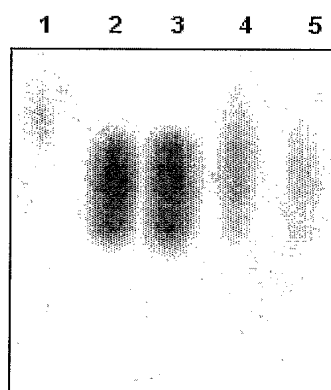
6/9

Fig. 6

A.

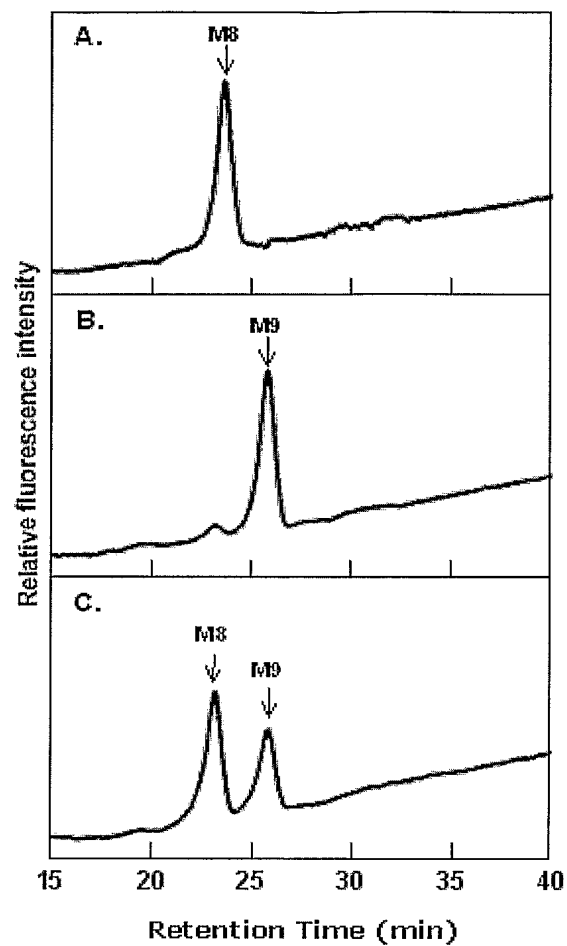


B.



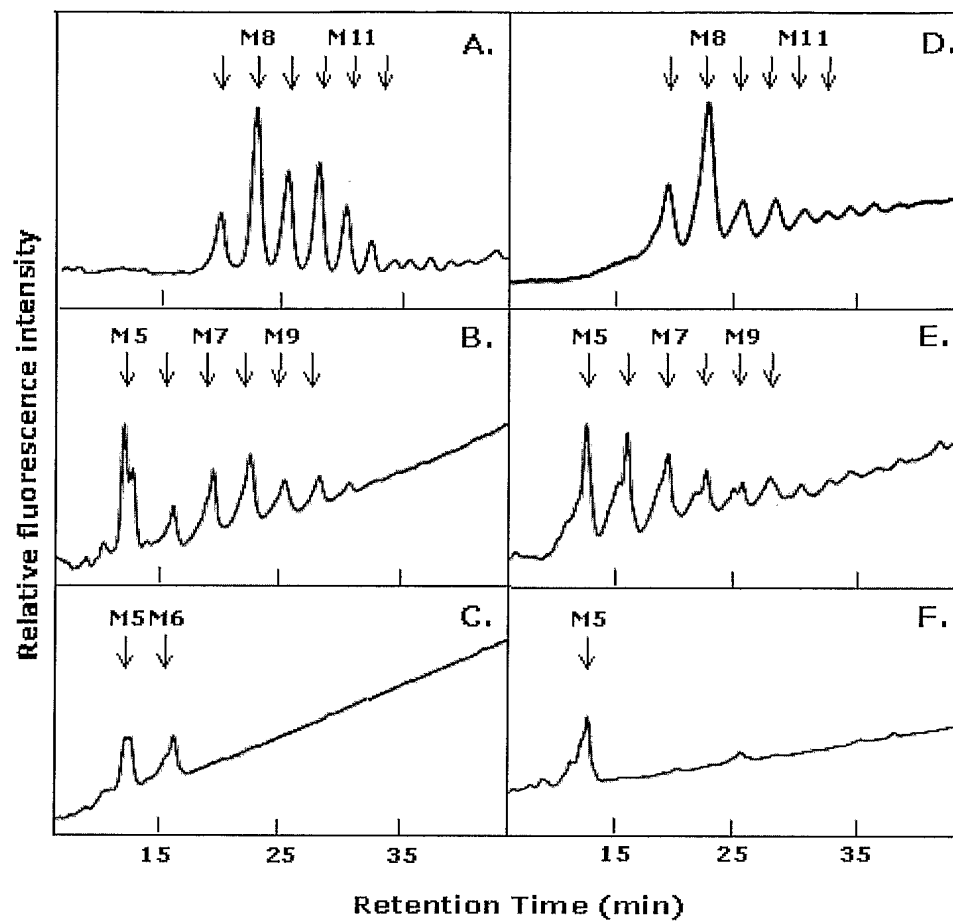
7/9

Fig. 7



8/9

Fig. 8





9/9

Fig. 9

	ScHec1p	ScOchl1p	HpOchl1p	ORF379	ORF168	ORF288	ORF580	ORF100	ORF576
ScHec1p (396 aa)		20	21	40	23	18	19	18	17
ScOchl1p (480 aa)	36		22	24	37*	21	18	17	15
HpOchl1p (435 aa)	36	36		19	22	22	32	21	19
ORF379 (402 aa)	63	40	34		28	18	21	17	16
ORF168 (428 aa)	41	54*	39	45		21	21	20	17
ORF288 (414 aa)	35	36	40	34	40		21	51	33
ORF580 (362 aa)	34	36	48	35	39	40		20	19
ORF100 (425 aa)	34	33	37	33	36	66	38		32
ORF576 (369 aa)	30	31	33	30	32	50	33	47	

Similarity

Identity